

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the above-identified application:

Claim 1 (Currently Amended): A valve assembly, comprising:

a valve body having at least a fluid inlet, and a fluid outlet;

a valve element disposed at least partially within the valve body and moveable between (i) an open position, in which the valve body fluid inlet is in fluid communication with the valve body fluid outlet, and (ii) a closed position, in which the valve body fluid inlet is not in fluid communication with the valve body fluid outlet;

[[and]]

an actuator assembly coupled to the valve element, the actuator assembly including:

a housing,

a torque source disposed within the housing, the torque source adapted to receive one or more position control signals and operable, in response thereto, to supply a drive force,

a position sensor disposed within the housing, the position sensor coupled to receive the drive force and operable, in response thereto, to supply a signal representative of valve position, and

an output shaft disposed at least partially within the housing and coupled to the valve element, the output shaft further coupled to receive the drive force from the torque source, to thereby selectively move the valve element, upon receipt of the drive force, between the open and closed positions; and

a gear train disposed within the actuator assembly housing and coupled between the torque source and the position sensor, whereby the drive force from the torque source is coupled to the position sensor.

Claim 2 (Cancelled).

Claim 3 (Currently Amended): The valve assembly of Claim [[2]] 1, wherein the gear train is a step down gear train.

Claim 4 (Original): The valve assembly of Claim 1, further comprising:  
a connector assembly coupled to the housing and including a plurality of conductors electrically coupled to at least the torque source.

Claim 5 (Original): The valve assembly of Claim 4, wherein the connector assembly further includes a plurality of conductors electrically coupled to at least the position sensor.

Claim 6 (Original): The valve assembly of Claim 1, wherein the torque source comprises an electric motor.

Claim 7 (Original): The valve assembly of Claim 6, wherein the electric motor is a stepper motor.

Claim 8 (Original): The valve assembly of Claim 1, wherein the position sensor comprises a rotary variable differential transformer (RVDT).

Claim 9 (Original): The valve assembly of Claim 1, further comprising:  
a shaft bearing assembly disposed within the actuator housing and surrounding at least a portion of the output shaft.

Claim 10 (Original): The valve assembly of Claim 1, wherein the output shaft is coupled to the position sensor to thereby receive the drive force therefrom.

Claim 11 (Currently Amended): A valve actuator assembly configured to move a valve between an open and closed position, comprising:  
an actuator housing;

a torque source disposed within the actuator housing, the torque source adapted to receive one or more position control signals and operable, in response thereto, to supply a drive force;

a position sensor disposed within the actuator housing, the position sensor coupled to receive the drive force and operable, in response thereto, to supply a signal representative of valve position; and

an output shaft disposed at least partially within the actuator housing and coupled to the position sensor to receive the drive force therefrom the torque source, to thereby selectively move the valve, upon receipt of the drive force, between the open and closed positions.

Claim 12 (Original): The actuator assembly of Claim 11, further comprising:

a gear train disposed within the actuator assembly housing and coupled between the torque source and the position sensor, whereby the drive force from the torque source is coupled to the position sensor.

Claim 13 (Original): The actuator assembly of Claim 12, wherein the gear train is a step down gear train.

Claim 14 (Original): The actuator assembly of Claim 11, further comprising:

a connector assembly coupled to the housing and including a plurality of conductors electrically coupled to at least the torque source.

Claim 15 (Original): The actuator assembly of Claim 14, wherein the connector assembly further includes a plurality of conductors electrically coupled to at least the position sensor.

Claim 16 (Original): The actuator assembly of Claim 11, wherein the torque source comprises an electric motor.

Claim 17 (Original): The actuator assembly of Claim 16 wherein the electric motor is a stepper motor.

Claim 18 (Original): The actuator assembly of Claim 11, wherein the position sensor comprises a rotary variable differential transformer (RVDT).

Claim 19 (Cancelled).

Claim 20 (Original): A valve assembly, comprising:

- a valve body having at least a fluid inlet, and a fluid outlet;
- a valve element disposed at least partially within the valve body and moveable between (i) an open position, in which the valve body fluid inlet is in fluid communication with the valve body fluid outlet, and (ii) a closed position, in which the valve body fluid inlet is not in fluid communication with the valve body fluid outlet; and
- an actuator assembly coupled to the valve element, the actuator assembly including:
  - a housing,
  - a motor disposed within the housing, the motor adapted to receive one or more position control signals and operable, in response thereto, to supply a drive force,
  - a gear train disposed within the actuator assembly housing, the gear train coupled to receive and transfer the drive force supplied from the motor,
  - a position sensor disposed within the housing, the position sensor coupled to receive the drive force transferred from the gear train and operable, in response thereto, to supply a signal representative of valve position, and
  - an output shaft disposed at least partially within the housing and coupled to the valve element, the output shaft further coupled to receive the drive force transferred from the gear train, to thereby selectively move the valve element, upon receipt of the drive force, between the open and closed positions.

Claim 21 (Currently Amended): A valve assembly, comprising:

a valve body having at least a fluid inlet, and a fluid outlet;  
a valve element disposed at least partially within the valve body and moveable between (i) an open position, in which the valve body fluid inlet is in fluid communication with the valve body fluid outlet, and (ii) a closed position, in which the valve body fluid inlet is not in fluid communication with the valve body fluid outlet;  
an interface shaft coupled to the valve element; [[and]]  
an actuator assembly coupled to the interface shaft, ~~thnde~~ the actuator assembly including:

a housing,  
an output shaft disposed at least partially within the housing and coupled to the interface shaft, the output shaft adapted to receive a drive force and configured, in response thereto, to selectively move the valve element between the open and closed positions, and  
a shaft bearing assembly disposed within the actuator housing and surrounding at least a portion of the output shaft and the interface shaft; and  
a gear train disposed within the actuator assembly housing and coupled between the torque source and the position sensor, whereby the drive force from the torque source is coupled to the position sensor.

Claim 22 (Previously Presented): The valve assembly of Claim 21, further comprising:

a torque source disposed within the actuator assembly housing, the torque source adapted to receive one or more position control signals and operable, in response thereto, to supply the drive force to the output shaft.

Claim 23 (Previously Presented): The valve assembly of Claim 21, further comprising:

a position sensor disposed within the actuator assembly housing, the position sensor coupled to receive the drive force and operable, in response thereto, to supply a signal representative of valve position.

Claim 24 (Cancelled).

Claim 25 (Currently Amended): The valve assembly of Claim ~~[[24]]~~ 23, wherein the gear train is a step down gear train.

Claim 26 (Previously Presented): The valve assembly of Claim 22, wherein the torque source comprises an electric motor.

Claim 27 (Previously Presented): The valve assembly of Claim 26, wherein the electric motor is a stepper motor.

Claim 28 (Previously Presented): The valve assembly of Claim 23, wherein the position sensor comprises a rotary variable differential transformer (RVDT).

Claim 29 (Previously Presented): The valve assembly of Claim 23, wherein the output shaft is coupled to the position sensor to thereby receive the drive force therefrom.